CHAPTER III

DESIGN OF THE STUDY

This chapter proposes to select the study area, markets, crops, study period, approach to the study, performance variables, tools of analysis and hypotheses.

Selection of the Study Area

Eventhough the purpose of the present study is to understand the problems of agricultural marketing in Gujarat, the attention is focused on a detailed study of one district. For this purpose, the selection of the district becomes imperative. The norms for the selection of a district include the level of agricultural prosperity of the district and the number of Agricultural Produce Market Committees and the number of market yards. From the point of view of the level of agricultural prosperity, Valsad district stands first but from the point of view of the number of Agricultural Produce Market Committees and market yards Valsad ranks very low. On the other hand, though Mehsana has a lower rank from the point of view of the level of agricultural prosperity it stands second to none in terms of the number of Agricultural Produce Market Committees and market yards. Moreover, the phenomenal growth of Unjha market yard is unique and unparallel. The factors affecting the extraordinary
growth of Unjha market needs a special study and a study has been already undertaken on this. The growth of Unjha market cannot perhaps be a common example for other markets of Gujarat state. Moreover, to study regulated markets of Mehsana district excluding Unjha market will also distort the picture of the growth and development of regulated markets in Mehsana District. For this particular reason, Mehsana district is not selected for the present study. Looking to the above difficulty, Kheda district was found appropriate for the purpose of the study because, it is fairly developed in terms of agricultural prosperity and ranks second in terms of the number of Agricultural Produce Market Committees and market yards (see Table 1.1).

Selection of the Study Period

In Kheda district the first Agricultural Produce Market Committee that started functioning was that of Kapadvanj in the year 1947. The last Agricultural Market Produce Committee was established in the year 1960 in Petlad. During this period of thirteen years, as shown in Table 3.1, eleven market committees were established in the district of Kheda. However, Green Revolution came into being in 1965 and moreover the newly established markets might be in their infancy. On the other hand, Gujaral State experienced severe draught after 1985 and

this might have affected the agricultural product and the market arrivals. For these reasons, the study was restricted to a decade beginning from 1975-76 to 1984-85. This can be considered the most ideal period to study the working of regulated markets of Kheda district.

Table 3.1

GROWTH OF REGULATED MARKETS IN KHEDA DISTRICT

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>1</td>
</tr>
<tr>
<td>1948</td>
<td>5</td>
</tr>
<tr>
<td>1950</td>
<td>6</td>
</tr>
<tr>
<td>1955</td>
<td>8</td>
</tr>
<tr>
<td>1956</td>
<td>7</td>
</tr>
<tr>
<td>1958</td>
<td>10</td>
</tr>
<tr>
<td>1960</td>
<td>11</td>
</tr>
</tbody>
</table>

Selection of Crops

The present study is restricted to four crops viz. paddy, wheat, bajra and groundnut. These crops were selected on the basis of area under different crops as a percentage to total cropped area of the district. The area under paddy, bajra, wheat and groundnut as a percentage to total cropped area of the
district are 29.57, 27.55, 11.77 and 7.08 respectively in the year 1984-85. Though tobacco has a relatively high percentage area under the crop (17.78), it is not selected for the purpose of the study because it is not a regulated crop and further its marketing is organised at the State level.

**Selection of the Markets**

There are eleven Agricultural Produce Market Committees in Kheda district. It is not possible to study in much detail all the regulated markets. Therefore, it was decided to select four markets of the district for the purpose of the study.

Ideally speaking, markets should be selected on the basis of market arrivals as a percentage of marketable surplus of the area. However, the difficulty is that the figures pertaining to marketable surplus of different crops in different market areas were not available at the time of selection of markets. Therefore, the resort has been taken to the market arrivals as a percentage of the production of different crops in the area. Again, at the taluka level (where a market is established) figures pertaining to area under different crops are available but the yield per hectare at the taluka level is not available on a scientific basis. Therefore, production of the crop in the area can be obtained by multiplying the average yield per hectare of the district by the area under the crop at the taluka level.
looking to these difficulties, ready-made figures pertaining to production of different crops in different market areas were obtained from the unpublished records of Directorate of Agriculture Marketing, Gandhinagar and then market arrivals of different crops as a percentage to the production of the respective crop in the area was worked out. This has been shown in Table 3.2.

At this stage, one more difficulty was experienced by the author in the selection of markets. The purpose of the study is to understand the working of marketing mechanism in the selected four markets with respect to the selected four crops. The selected four common crops did not rank high in terms of arrival as a percentage of production in the selected four markets, e.g. in Matar regulated market, arrival of paddy as a percentage of production of the area is very high (71.9) but for other crops like bajra, its arrival is low (7.4%). Therefore, Matar could not be selected as the study intends to study all the four crops in all the four markets. Thus, markets which showed high arrivals of only one crop have not been selected. Similarly, the performance of Nadiad and Anand regulated markets was good in terms of arrival as a percentage of production, they were not selected due to certain administrative difficulties and practical considerations. To have reasonable arrivals of the selected four crops in all the four markets, the markets selected are Borsad, Khambhat, Kapadvanj and Nehemedabad.
### Table 3.2

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Name of Market</th>
<th>Paddy Production Arrivals</th>
<th>Wheat Production Arrivals</th>
<th>Bajra Production Arrivals</th>
<th>Groundnut Production Arrivals</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3a)</td>
<td>(3b)</td>
<td>(4a)</td>
<td>(4b)</td>
</tr>
<tr>
<td>1.</td>
<td>Nadiad</td>
<td>401920</td>
<td>169341</td>
<td>45.92</td>
<td>66980</td>
</tr>
<tr>
<td>2.</td>
<td>Anand</td>
<td>265056</td>
<td>265055</td>
<td>18.08</td>
<td>51048</td>
</tr>
<tr>
<td>3.</td>
<td>Thasra</td>
<td>178308</td>
<td>--</td>
<td>33940</td>
<td>--</td>
</tr>
<tr>
<td>4.</td>
<td>Borsad</td>
<td>191300</td>
<td>186617</td>
<td>97.65</td>
<td>36680</td>
</tr>
<tr>
<td>5.</td>
<td>Patlad</td>
<td>549439</td>
<td>197362</td>
<td>3.52</td>
<td>57758</td>
</tr>
<tr>
<td>6.</td>
<td>Khambhat</td>
<td>742218</td>
<td>169522</td>
<td>22.83</td>
<td>99788</td>
</tr>
<tr>
<td>7.</td>
<td>Hatar</td>
<td>724009</td>
<td>528625</td>
<td>71.98</td>
<td>115860</td>
</tr>
<tr>
<td>8.</td>
<td>Mehsana</td>
<td>212170</td>
<td>268664</td>
<td>135.25</td>
<td>82998</td>
</tr>
<tr>
<td>9.</td>
<td>Kapadwanj</td>
<td>187650</td>
<td>73251</td>
<td>68.40</td>
<td>112210</td>
</tr>
<tr>
<td>10.</td>
<td>Balasinor</td>
<td>980638</td>
<td>--</td>
<td>35700</td>
<td>--</td>
</tr>
</tbody>
</table>

**Source:** Directorate of Agricultural Marketing, Gandhinagar.
Choice of Approach

The approach selected for the present study is known as "Market Structure Approach". The market structure approach has been explained by authorities like Purcell, Bain and Barbara-Harris. Their explanations are like this:

1. Purcell defines the market structure as the organisational characteristics of the market system. According to him, the principal characteristics of market structure are seller concentration, buyer concentration, barriers to entry and the degree of product differentiation.

2. According to Bain, the market structure refers to the organisational characteristics which determine the relations of sellers in the market to each other, of buyers in the market to each other, of the sellers to the buyers and of sellers established in the market to other actual or potential new firms which might enter the market.

References


In Barbara Harriss, the market structure is the organisational characteristics influencing entry, competition and price formation in the market.

This approach suffers from certain limitations and has produced contradictory results in the empirical studies conducted elsewhere. In certain other studies, this approach has produced revealing results. Therefore, this approach has been selected for the present study. Further, the organisation has been studied keeping in view the main economic aspects of market study such as efficiency, integration, stability, competitiveness etc. Non-economic aspects such as establishment and administration have been ignored here in this study.

Economic aspects of the market study have been studied here keeping in view the perfect market as discussed in text-books of micro economic theory. This is because micro-economic theory considers the perfect market as the most efficient and therefore an ideal one. Instead of taking all the conditions of a perfectly competitive market, only few selected conditions of a


perfect market have been taken here, following Dressler and Richard because they consider these conditions sufficient for the purpose of studying the efficiency of Agricultural Marketing.

1. perfect knowledge by all buyers and sellers

2. each buyer and seller acts in an economically 'rational' way disregarding any influence of his actions on price, and

3. free entry in all directions.

If these three conditions are fulfilled, a market becomes impersonal and competitive. As regulated markets come into existence through legal procedure with a definite objective of protecting the interests of the farmers, some additional conditions become necessary to judge the performance of regulated markets.

(i) market openness

(ii) absence of excessive profits to transactors

(iii) immediate payment

(iv) absence of delay in transactions

(v) absence of corruption

(vi) controlled oscillation of market prices around normal prices

(vii) amenities to market participants

(viii) helpfulness of the market staff and functionaries.

Thus the total conditions turn out to be eleven to judge the performance of a market. A market which satisfies these eleven conditions will be considered as an ideal market for the purpose of our analysis. The deviation of the working of an actual market from an ideal one has been taken as a measure of inefficiency of the regulated market.

Regulated market does not mean that market mechanism is eliminated. It simply means that unwanted predatory middle-men are eliminated and the exploitation of the farmer is eradicated. Though the regulated market functions within the legal framework, it still resembles the private market because market forces of supply and demand have a free play. The only difference between

the regulated market and the so-called free private market is that in previous one, the trade practices are regulated by law and hence they are subject to certain constraints. Therefore, the evaluation of regulated markets should be done in the light of these constraints which have been highlighted by the experts in the field of Agricultural Marketing. Lele is of the opinion that regulated markets are established with multiple economic and social objectives. These objectives include (i) protection of the interests of the producer-seller through healthy competition and ensuring a fair deal (ii) improvement of marketing services (iii) equalization of the bargaining power of the farmer and trader, (iv) creation of greater competition and better services of transport, storage, grading, pooling, market intelligence, (v) inspection of weights and measures, (vi) provision of credit, finance etc.

The experts of the Agricultural Development Council have elaborated the difficulty in evaluating the performance of

market. According to them, "The question of what is good marketing system cannot be separated from the more fundamental question of what is good society, for the evaluation of a market organization has meaning only within the context of a broader view of the 'good society' or 'good life', ... The system cannot be evaluated in terms of human relationships and its effect on the character of the people." Thus, the performance of regulated markets should be judged in the light of given objectives and the actual achievement. However, performance of regulated market cannot be judged only through goals i.e., economic and social objectives lying behind the law, because the constraints in terms of economic and social objectives have a bearing on their working. The objectives of market regulation do not exactly coincide with the conditions of perfectly competitive market, yet regulated market has much similarity with a perfectly competitive market.

Thus the above discussion shows that the performance of a regulated market must be judged with the help of a dual criteria viz. (i) fulfilment of the goals and objectives, and (ii) satisfaction of the conditions of a perfectly competitive market.

**Selection of Performance Variables**

To judge the working of a regulated market with the help of dual criteria viz. (i) fulfilment of goals and objectives, (ii) satisfaction of some of the conditions of a competitive market, two types of variables are selected in the present study - (a)
economic variables, and (b) non-economic variables. This dichotomy need not be stretched too far while actually analysing the problem. Economic variables include (1) association of prices, (2) parity prices, (3) marketing margins, (4) marketing procurement costs, and (5) market arrivals. Non-economic variables include (1) disposal quickness, (2) immediate payment, (3) amenities to market participants, (4) helpfulness of the market staff and functionaries to transactors, (5) corruption and crime, (6) pilferages and wastes, (7) market consciousness, and (8) market information.

**Economic Variables**

(1) **Association of Prices**

Price stability is one of the essential characteristics of an efficient market. If prices are not stable, it creates uncertainty on the part of farmer/producer. In subsistence agriculture, where most of the farmers are small and marginal farmers, unstable prices i.e., price-uncertainty adversely affects the economic conditions of a poor farmer. Moreover, there is a great deal of disincentive to invest in traditional agriculture because of price fluctuations over space and time.

2. Dave, P.K. "Risk and Uncertainty in Indian Agriculture" (Unpublished Ph.D. Thesis), Gujarat University, 1980, p. 83
3. Lele Uma, op.cit.
Further, prices are more variable in price discovery system than in price setting system which is true for regulated markets. Therefore, price stability becomes more essential for a regulated market.

So far as prices are concerned, another important variable is that markets should be integrated. In other words, price differences over space should not exceed transport cost. However, some experts have raised objections against using price variability as an indicator of market inefficiency because price is determined by forces which lie outside the sphere of marketing. The implicit assumption behind integrated markets is that buyers and sellers are rational in their behaviour i.e. sellers move from low price market to high price market and buyer move from high price market to the low price market. Market integration has been examined in most of the studies with the help of correlation coefficient between the prices of two markets. High correlation coefficient means markets are integrated and markets are highly competitive. However, in some of the studies this tool has been found as an inadequate one to prove or disprove market integration. Spatial prices differences are

1. Rhodes, op. cit.


3. Narayana, Hari: "How to Study Agricultural Marketing and How and to Study it".
found to be less than transport cost even when correlation coefficient is very high.

In the present study, the market integration is examined by correlation coefficient and analysis of variance following Lelo.

(2) Parity Prices

Kulkarni has attempted to estimate the price spread of groundnut between two regulated markets in Maharashtra with the help of oil prices prevailing in Bombay during 1958-59. He has developed the concept of parity price and also has used the following equation to know whether the prices at two places are in parity or not.

\[ P_x - P_y = (A_x - A_y) + (B_x - B_y) - C \]

1. Barbara Harris, "Pricing Efficiency in the Indian Wheat Market."
\[ P = \text{the price of one maund of oil in Bombay} \]
\[ M = \text{the price of one maund of cake in Bombay} \]
\[ T_o = \text{the cost of transporting one maund of oil to Bombay} \]
\[ T_c = \text{the cost of transporting one maund of cake to Bombay} \]
\[ C = \text{the cost of purchasing and crushing one maund of groundnut pods} \]
\[ \delta = \text{is the oil content in one maund of groundnut pods, and} \]
\[ \beta = \text{is the content of cake in one maund of groundnut pods} \]

In the present study, this equation has been used to study market integration and thereby market competitiveness. The parity price has been estimated to know whether the actual price is more or less than the parity price and thereby to find out whether the markets are integrated or not. In the present study, Ahmedabad has been taken as a terminal market and an attempt has been made to find whether groundnut kernel prices in Kapadvanj market are in parity with Ahmedabad groundnut oil prices or not. The analysis is restricted to only Kapadvanj market because groundnut arrivals are recorded only in Kapadvanj market. Other markets like Kershad, Khabhali and Ahmedabad have negligible arrivals of groundnut and therefore are not recorded also. For
this, monthly annual average prices of 1947-48 of groundnut oil in Ahmedabad and groundnut kernel in Kapadvanj have been used in the present study.

Kulkarni's equation has been accepted with some modifications. The modified equation is as under:

\[ \frac{1}{L} = (A \cdot B_n) \cdot (A \cdot B_1) \cdot (A + B_0 \cdot C_0) \]
\[ + (A \cdot B_n) \cdot (A \cdot B_1) \cdot (A + B_0 \cdot C_0) \]
\[ + (A \cdot B_n) \cdot (A \cdot B_1) \cdot (A + B_0 \cdot C_0) \]
\[ + (A \cdot B_n) \cdot (A \cdot B_1) \cdot (A + B_0 \cdot C_0) \]
\[ + (A \cdot B_n) \cdot (A \cdot B_1) \cdot (A + B_0 \cdot C_0) \]

where

- \( L \) is groundnut parcel price of groundnut kernels in Rs. per quintal.
- \( A \) is price of groundnut oil in Ahmedabad.
- \( B \) is price of groundnut cake in Ahmedabad.
- \( n \) is the oil content from one quintal of groundnut kernel.
- \( B \) is the cake content from one quintal of groundnut kernel.
- \( I \) is the cost of transporting of oil (.41 quintal) extracted from one quintal groundnut kernel from Kapadvanj to Ahmedabad.
The cost of transporting cake (1/7 quintal) quantal from one quintal groundnut kernel from Nagpur to Ahmedabad.

\textbf{t} is the cost on groundnut oil worth Rs. 1/-

\textbf{i} is the cost on oil cake worth Rs. 1/-

\textbf{c} is the cost of purchasing one quintal of groundnut kernel, including tax, tuta, and weightment charges.

\textbf{C} is the cost of crushing one quintal groundnut kernel.

\textbf{3) Marketing Margins}

Marketing margin is generally considered as an index of efficiency. If marketing margins are high, then marketing system is considered an inefficient one and vice versa. Of course, this approach is not free from criticisms. It is argued that a good and honest businessman will charge a higher price and expect higher profit as compared to what is being charged by a dishonest and corrupt businessman. Thus if we look at the marketing margins only ignoring the trade practices, they do not give a correct idea about marketing efficiency.

Marketing efficiency can be really judged only when we have data about the marketing charges and traders' procurement cost and profits in the alternative systems of marketing under the implicit assumption that behaviour pattern on the part of the transactors is ideal and/or identical. In the present study, marketing charges and procurement costs have been estimated under alternative systems of marketing. This has been done with the help of data collected through primary survey. The marketing cost on the part of the farmer and the procurement cost on the part of the trader are calculated in this study per quintal of the produce bought and sold at the time of first sale under regulated and unregulated markets. Various charges in regulated markets are fixed by their rules and regulation and collected from various regulated markets. Under unregulated marketing system, the information was collected from the farmers and traders through primary survey. Thereafter, the relative efficiency of the two marketing systems was compared through the differences in costs. Further, an attempt has been made to find out the difference between the farm price and the retail price and then producers' share in consumers' rupee and has been calculated with the help of the secondary data. On the basis of this comparison, the relative competitiveness among the different markets has been examined.

(4) Market Arrivals

The main objective behind the establishment of regulated markets is to protect the interest of the farmers. Protection of
traders' interest is neglected in the legislation itself. The reason may be that in developing countries the elected representatives of the state assembly and the ideologies of the political parties to which they belong might be aiming at helping the weaker sections of the society through state legislation. Further, it is normally presumed that the traders' bargaining power is more and they are better informed also. Thus, regulated markets are serving the purpose to the extent farmers use regulated markets to dispose off their produce. In other words, market arrivals can be used as a yardstick to measure the efficiency of regulated markets.

Actually market arrival as a percentage of marketable surplus gives an idea about the efficiency of a regulated market. If this percentage is high, then the market can be considered as an efficient one and vice versa. The difficulty in Gujarat state is that the data pertaining to marketable surplus is not available either from government agencies or from research institutions for a long time span. Occasional studies pertaining to one or two districts are available for Gujarat and they do not serve the purpose of the present study because they are relatively old and cover districts other than Thiruvananthapuram. Therefore, an attempt has been made in the present study to estimate marketable surplus from a sample study. The details of the sample are given later. The marketable surplus has been estimated with the help of following equation:

\[ A_m = S_m - D_e - D_c \]

1. (a) Vyas, V.S., and Mahendra, N.H., op.cit., pp.52-70.
(b) Acharya, S.S., op.cit., p.360.
where \( A_m \) is the maximum possible level of market arrival by regulated markets.

\( S_m \) is marketable surplus

\( Q_e \) is quantity sold within the exemption limit

\( Q_c \) is quantity sold as a commitment to clear the loans in kind.

**Non-economic Variables**

Besides economic variables, non-economic variables are also examined in the present study by interviewing the sample farmers and traders. This is done in the light of the observations made by the investigators during their visits to the field. The non-economic variables that are examined are: grading, disposal quickness, delay in payment, amenities, helpfulness of the market staff and functionaries, corruption and crime, pilferages and wastes, market consciousness, market information etc.

**Sampling Procedure and Technique**

The sample study was undertaken: (1) to estimate marketable surplus of farmers belonging to different size groups, (2) to estimate the marketing - procurement cost under alternative system of agriculture marketing, (3) to find out the reasons for
low arrival in regulated markets, (4) to find out prices received and quantities sold under alternative systems of marketing, (5) to know the working of non-economic variables.

In the sampling procedure, it is assumed that for the regulated market to have larger arrivals, the market should be easily accessible and easily negotiable by both the farmer and the trader. According to the National Commission on Agriculture, "to get a fair deal a regulated market must be available within a radius of 5 kilometres, which is negotiable by foot or by cart by the farmer."

Wong is of the view that for perishable commodities, the market should be accessible even by a bicycle track. According to him, no farmer would find remunerative to carry his produce to the market if it is more than 30 minutes walking distance.

Hence for the present study, villages within a radius of 5 kilometres of the market were selected at random. Two villages within a radius of 5 kms and one village within a radius of 15 kms were selected from each market to study the impact of the distance factor on the market arrivals. Thus three villages from each market were chosen. As four selected markets were to be studied, in all, twelve village were selected and studied.

For each market 20 farmers were interviewed. Thus in all 368 farmers from four markets were interviewed and these farmers were from small, medium and large groups. For studying the traders' responses, 10 traders were chosen from each market randomly. Hence 40 traders were interviewed from four markets.

Sample Villages

For studying the farmers' responses and their marketing costs, inside and outside the regulated markets, 3 villages from each market were selected. Out of these three, 2 were within 5 kilometres and one within 15 kilometres of the regulated market.

For Borsad market, David and Nsariya villages which are within the radius of 5 kilometres of the market and Napa Talpadi which is within 15 kilometres were selected for the present primary study. Similarly for Phambhat market, Shakarpur and Netpur (within 5 kilometres) and Kulej (within 15 kilometres) were selected. For Rapadvanj market, Nawagam, Jaluya were selected which are within 5 kilometres radius and Alarumba which is within 15 kilometres was chosen. For Mohamedabad market, Khairaj and Bhachai village (within 5 kilometres) and Modai village (within 15 kilometres of the market) were chosen.

Data Requirements and Sources

In the present study, both primary as well as secondary data were collected. The details of the primary data are given in the
preceding section. The secondary data on prices, arrivals, market fee, licence fee etc. were collected from various sources. They are: (1) State Agricultural Marketing Board, Gandhinagar, (2) Directorate of Agricultural Marketing, Gandhinagar, (3) Published and unpublished records and reports of the Agricultural Produce Market Committees of different talukas of Ahmedabad district.

Questionnaire

A common questionnaire for all sample farmers and a common questionnaire for all sample traders were prepared.

Tools of Analysis

The following tools of analysis are used in the present study:

(1) Classical time series analysis

(2) Functional Analysis

(1) Classical time series analysis

This analysis is employed to understand the effect of trend, cyclical, seasonal, and irregular elements on prices of paddy, rice, wheat, bajra and groundnut. The actual prices of paddy, rice, wheat, bajra and groundnut are used for the
analysis assuming farmers respond to actual prices and not to deflated prices.

The ratio in the moving average method is used while computing seasonal factors. The mathematical form is as follows:

\[ O = T \times S \times C \times I \]

where \( T \) is secular trend, \( S \) is seasonal variation, \( C \) is cyclical variation and \( I \) is irregular variation.

12 month moving average is employed assuming seasonal variation has 12 month period. It would smoothen \( S \times I \) without changing \( T \times C \). \( S \times I \) is estimated by the following method:

<table>
<thead>
<tr>
<th>Original Data</th>
<th>T \times S \times C \times I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving Average</td>
<td>T \times C</td>
</tr>
</tbody>
</table>

Thus the trend and cyclical variations are removed for the period 1973-74 to 1984-85.

(2) Functional Analysis

Four types of functional analysis were used:

(i) Analysis of variance and correlation coefficient matrix
Analysis of variance is used to study the spatial variation in prices. The zero order correlation coefficient matrix between annual average prices in the markets is calculated to know the relationship between the prices.

(ii) The Coefficient of Variation

The coefficient of price variation is worked out for paddy, rice, wheat, bajra and groundnut for the ten years beginning from 1970-71 to 1980-81. This kind of analysis is used to identify stable markets.

(iii) Multiple Regression

A linear multiple regression model is used for estimating the relationship between market fee and price index and market arrivals. The multiple regression function is as follows:

\[ F = a + b_1 X_1 + b_2 X_2 + \cdots + b_m X_m \]

where

- \( F \) is market fee
- \( X_m \)
- \( X_1 \) is price index
- \( X_2 \) is market arrivals
- \( a \) and \( b_i \) are parameters to be estimated.
(iv) **Linear Trends**

Linear trends are fitted by using the **Least Square** method for the market fee and licence fee for the period 1975-76 to 1984-85.

The following hypotheses are tested in the present study:

1. Regulated markets have the features and characteristics of a competitive market.

2. Market regulation provides stability of markets in terms of prices.


4. The users of the regulated markets enjoy cost economies in the market than those transacting outside the regulated markets.

**Conclusion**

Thus, as shown in the preceding pages of this chapter, four markets of Kheda district are studied, taking principal crops of the district. The study is made through market structure approach with the help of performance variables and tools of analysis mentioned earlier. The hypotheses mentioned above are tested with the help of primary and secondary data, the sources and the method of collection of which is already discussed. Before examining the working of markets on the lines mentioned in this chapter, the district profile of Kheda district is given in the next chapter to get familiarity with Kheda district.
LOCATION OF REGULATED MARKETS IN KHEDA DISTRICT

SCALE 0 4 8 12 16 20 24 28 32 KMS

LEGEND:
■ REGULATED MARKET

LOCATION OF KHEDA DISTRICT IN GUJARAT STATE